

Title (en)

Water storage device having a powered anode

Title (de)

Wasserspeicher mit einer elektrisch betriebenen Anode

Title (fr)

Réservoir d'eau avec anode alimentée électriquement

Publication

EP 1640478 A3 20060517 (EN)

Application

EP 05255925 A 20050923

Priority

US 95085104 A 20040927

Abstract (en)

[origin: EP1640478A2] A water heater having a powered electrode and a method of controlling the water heater. The water heater includes a tank to hold water, a heating element, an electrode, and a control circuit. The control circuit includes a variable voltage supply, a voltage sensor, and a current sensor. The control circuit is configured to controllably apply a voltage to the electrode, determine the potential of the electrode relative to the tank with the voltage sensor when the voltage does not power the electrode, determine a current applied to the tank after the voltage powers the electrode, determine a conductivity state of the water in the tank based on the electrode potential and the current, and define the voltage applied to the powered electrode based on the conductivity state. The control circuit of the water heater can also determine whether the water heater is in a dry-fire state.

IPC 8 full level

C23F 13/04 (2006.01); **F24H 9/20** (2006.01)

CPC (source: EP US)

C23F 13/04 (2013.01 - EP US); **F24H 9/45** (2022.01 - EP US); **F24H 9/455** (2022.01 - EP US); **F24H 15/132** (2022.01 - EP US); **F24H 15/37** (2022.01 - EP US); **F24H 15/414** (2022.01 - EP US)

Citation (search report)

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- [Y] US 4136001 A 19790123 - NOZAKI MICHIO B
- [YA] EP 1426467 A1 20040609 - MERLONI TERMOSANITARI SPA [IT]
- [X] DE 10145575 A1 20030403 - ELECTOLUX HAUSTECHNIK GMBH [DE]
- [X] DE 3532058 A1 19870312 - ELEKTRO GROSSHANDLUNG THEODOR [DE]

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FR3044089A1; CN101988746A; US2016362797A1; US10273585B2; EP2026045A3; FR2919719A1; US11193211B2; WO2009029287A1

Designated contracting state (EPC)

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EP 1640478 A2 20060329; **EP 1640478 A3 20060517**; **EP 1640478 B1 20110427**; AT E507322 T1 20110515; CN 102226574 A 20111026; CN 102226574 B 20130522; CN 1766458 A 20060503; CN 1766458 B 20110713; DE 602005027644 D1 20110609; EP 1813698 A1 20070801; US 2006083491 A1 20060420; US 2008164334 A1 20080710; US 2008302784 A1 20081211; US 7372005 B2 20080513; US 8162232 B2 20120424

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